

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/IB2004/001373

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N7/26

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"MUNICH MEETING OF MPEG-4 WORKING GROUP. REPORT ISO/IEC JTC1/SC29/WG11 MPEG4/N1172" INTERNATIONAL ORGANIZATION FOR STANDARDIZATION - ORGANISATION INTERNATIONALE DE NORMALISATION, XX, XX, 1996, pages 3-49, XP002047798 page 5; figure 3.1.2 page 11, paragraph 3.3.2 - page 15, last line ----- -/--	1-7

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

22 July 2004

Date of mailing of the international search report

02/08/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schoeyer, M

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/001373

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EBRAHIMI T: "MPEG-4 video verification model: A video encoding/decoding algorithm based on content representation" SIGNAL PROCESSING. IMAGE COMMUNICATION, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 9, no. 4, 1 May 1997 (1997-05-01), pages 367-384, XP004075336 ISSN: 0923-5965 page 371, left-hand column, line 21 - page 372, left-hand column, paragraph 2.1 page 373, right-hand column, paragraph 2.2 - page 376, left-hand column, paragraphs 3.1,2	1-7
Y	----- EP 0 891 093 A (MATSUSHITA ELECTRIC IND CO LTD) 13 January 1999 (1999-01-13) abstract column 22, line 31 - column 24, line 18	1-7
A	----- WO 03/034743 A (KONINKL PHILIPS ELECTRONICS NV) 24 April 2003 (2003-04-24) abstract page 1, line 1 - page 3, line 6	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/001373

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0891093	A	13-01-1999	JP 3191922 B2	23-07-2001
			JP 11088881 A	30-03-1999
			CN 1312638 A	12-09-2001
			CN 1312639 A	12-09-2001
			CN 1213246 A	07-04-1999
			DE 69808188 D1	31-10-2002
			DE 69808188 T2	30-04-2003
			DE 69818523 D1	30-10-2003
			DE 69822002 D1	01-04-2004
			EP 1087623 A1	28-03-2001
			EP 1087624 A1	28-03-2001
			EP 1229739 A2	07-08-2002
			EP 0891093 A2	13-01-1999
			ES 2207455 T3	01-06-2004
			ES 2184177 T3	01-04-2003
			JP 3191925 B2	23-07-2001
			JP 2001177835 A	29-06-2001
			JP 2001186522 A	06-07-2001
			TW 417388 B	01-01-2001
			US 2002054640 A1	09-05-2002
			US 6466697 B1	15-10-2002
			US 6665445 B1	16-12-2003
			US 2001013952 A1	16-08-2001
WO 03034743	A	24-04-2003	WO 03034743 A1	24-04-2003
			US 2003128757 A1	10-07-2003

29 JUL 2004

PCT
WIPO

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/IB2004/001373

International filing date (day/month/year)
28.04.2004

Priority date (day/month/year)
06.05.2003

International Patent Classification (IPC) or both national classification and IPC
H04N7/26

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Schoeyer, M

Telephone No. +49 89 2399-2136



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-7
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1 The following documents are referred to in this communication:

D1 : "MUNICH MEETING OF MPEG-4 WORKING GROUP. REPORT ISO/IEC JTC1/SC29/WG11 MPEG4/N1172" INTERNATIONAL ORGANIZATION FOR STANDARDIZATION - ORGANISATION INTERNATIONALE DE NORMALISATION, XX, XX, 1996, pages 3-49, XP002047798

D2 : EBRAHIMI T: "MPEG-4 video verification model: A video encoding/decoding algorithm based on content representation" SIGNAL PROCESSING. IMAGE COMMUNICATION, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 9, no. 4, 1 May 1997 (1997-05-01), pages 367-384, XP004075336 ISSN: 0923-5965

D3 : EP 0 891 093 A (MATSUSHITA ELECTRIC IND CO LTD) 13 January 1999 (1999-01-13)

2 Inventive Step

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 2, 4, 5, 6 does not involve an inventive step in the sense of Article 33(3)PCT.

- 2.1.1 Document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 1, discloses:

An encoding method which is applied to an input video sequence corresponding to successive scenes subdivided into video object planes (see abstract) and generating, for coding all the video objects of said scenes, a coded bitstream the content of which is described by means of a bitstream syntax allowing to recognize and decode all the elements of said content, including temporal prediction, in which the temporal prediction being chosen within a list comprising (see paragraph 3.3.2) the following situations:

- the temporal prediction is formed by directly applying the motion field sent by the encoder on one or more reference pictures;
- the temporal prediction is a copy of a reference image;
- the temporal prediction is formed by the temporal interpolation of the

motion field;

- the temporal prediction is formed by the temporal interpolation of the current motion field and further refined by the motion field sent by the encoder;

Differently than shown in D1 it is claimed in claim 1 that **the channels are described independently and that additional syntactic information is included at slice level** in the bitstream.

The skilled person working according to the method of D1, and confronted with the problem of improving the coding efficiency of the method of D1 will be aware of document D3. Document D3 shows (see e.g. figure 1) the inclusion of additional syntactic elements to include motion estimation for the different channels. As it is well known in the art to provide coding specifics at slice level, the skilled person will readily be considered to implement the syntactic element at slice level and will arrive at the full combination of features of claim 1, without the exercise of any inventive step. Consequently the subject-matter of current claim 1 lacks inventive step.

Incidentally it is noted that subject-matter of claim 1 is also considered to lack inventive step based on the combination of documents D2 and D3 for substantially the same reasoning as set out above.

2.1.2 Independent claim 2:

The subject-matter of claim 2 relates to an encoding method which substantially corresponds to that of claim 1, with the difference that the syntactic elements are placed at macroblock level. The inclusion of a syntactic element at macroblock level is considered to be obvious for similar reasons as set out above for claim 1.

2.1.3 Independent claim 4

The subject-matter of claim 4 relates to an encoding apparatus functioning corresponding to the method of claims 1 and 2. Consequently the subject-matter of this claim is considered to lack inventive step for substantially the

same reasons as set out above for claim 1.

2.1.4 Independent claim 5

The subject-matter of claim 5 relates to a signal which has been generated in accordance with a method as set out in claims 1 or 2. Consequently the subject-matter of this claim also lack inventive step for substantially the same reasons as set out above for claims 1 and 2.

2.1.5 Independent claim 6

The subject-matter of claim 6 relates to a method for decoding a signal which has been generated in accordance with a method as set out in claims 1 or 2. Consequently the subject-matter of this claim also lack inventive step for substantially the same reasons as set out above for claims 1 and 2.

2.1.6 Independent claim 7

The subject-matter of claim 7 relates to an decoding apparatus functioning corresponding to the method of claims 6. Consequently the subject-matter of this claim is considered to lack inventive step for substantially the same reasons as set out above for claim 6.

2.1.7 Dependent claim 3

It is well known in the art to include a syntactic element having the same meaning for different channels, consequently the subject-matter of claim 3 is obvious.

3. Article 33(4)

The subject-matter of claims 1-7 is industrially applicable in the field of image encoding.

Re Item VII.

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D3 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII.

Article 6 PCT

The requirements of Article 6 PCT have not been met because claims 4 and 7 are not fully clear.

It is not clear what features the encoder and the decoder according to claims 4 and 7 actually comprise.

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference FR030047WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/IB2004/001373	International filing date (<i>day/month/year</i>) 28 April 2004 (28.04.2004)	Priority date (<i>day/month/year</i>) 06 May 2003 (06.05.2003)
International Patent Classification (IPC) or national classification and IPC 7 H04N 7/26		
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input checked="" type="checkbox"/> Box No. II | Priority |
| <input checked="" type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35	Date of issuance of this report 11 November 2005 (11.11.2005)
	Authorized officer Idhir Britel Telephone No. +41 22 338 70 60

29 JUL 2004

PCT
WIPO

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/IB2004/001373

International filing date (day/month/year)
28.04.2004

Priority date (day/month/year)
06.05.2003

International Patent Classification (IPC) or both national classification and IPC
H04N7/26

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Schoeyer, M

Telephone No. +49 89 2399-2136



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-7
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1 The following documents are referred to in this communication:

D1 : "MUNICH MEETING OF MPEG-4 WORKING GROUP. REPORT ISO/IEC JTC1/SC29/WG11 MPEG4/N1172" INTERNATIONAL ORGANIZATION FOR STANDARDIZATION - ORGANISATION INTERNATIONALE DE NORMALISATION, XX, XX, 1996, pages 3-49, XP002047798

D2 : EBRAHIMI T: "MPEG-4 video verification model: A video encoding/decoding algorithm based on content representation" SIGNAL PROCESSING. IMAGE COMMUNICATION, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 9, no. 4, 1 May 1997 (1997-05-01), pages 367-384, XP004075336 ISSN: 0923-5965

D3 : EP 0 891 093 A (MATSUSHITA ELECTRIC IND CO LTD) 13 January 1999 (1999-01-13)

2 Inventive Step

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 2, 4, 5, 6 does not involve an inventive step in the sense of Article 33(3)PCT.

2.1.1 Document D1, which is considered to represent the most relevant state of the art to the subject matter of claim 1, discloses:

An encoding method which is applied to an input video sequence corresponding to successive scenes subdivided into video object planes (see abstract) and generating, for coding all the video objects of said scenes, a coded bitstream the content of which is described by means of a bitstream syntax allowing to recognize and decode all the elements of said content, including temporal prediction, in which the temporal prediction being chosen within a list comprising (see paragraph 3.3.2) the following situations:

- the temporal prediction is formed by directly applying the motion field sent by the encoder on one or more reference pictures;
- the temporal prediction is a copy of a reference image;
- the temporal prediction is formed by the temporal interpolation of the